Period: Date: Name:

**Practice with Newton’s Gravity**

1. Identify the formula used to calculate the force of gravity between two objects. Be sure to identify ALL variable used in the formula.

2. In YOUR OWN WORDS describe how the force of gravity between two objects changes as the mass of the objects and the distance separating them changes.

3. Calculate the force of gravity between the Earth and the Moon. Use appendix K on page 756 in the text to find the masses of both the Earth and the Moon, and their avg. distance from one another.

1km = 1000m

4. Calculate the force of gravity between the planet Neptune and the Sun. Use appendix K to find the mass of the Sun.

1km = 1000m

DNeptune from Sun = 44.97x108km

MNeptune = 1.03x1026kg

5. Explain why you would weigh less on the moon than you do on Earth. How would your weight change if you were on the planet Jupiter?

6. Calculate your weight in pounds if you were on the planet Mercury.

RMercury = 2.44x106m

MMercury = 3.31x1023kg

1 lbs. = .45kg

7. Calculate the force of attraction (Fgravity) between you and a friend! Assume your radial distance will be 5 meters.

1 lbs. = .45kg

8. How would your answer to #8 change if you and your “friend” were floating together out in space?

9. Calculate the mass of the Earth!

1 lbs. = .45kg

REarth = 6.37x106m

1 lbs. = 4.45 N